Commonwealth of Kentucky
Division for Air Quality

PERMIT STATEMENT OF BASIS

Title V Draft Permit: No. V-97-035
DOW CORNING CORPORATION
CARROLLTON, KENTUCKY 41008
December 12, 1997
COMPLETED BY: KUMAR POLE, P.E. & THOMAS L. ADAMS, P.E.

SOURCE DESCRIPTION:

Dow Corning Corporation is synthetic organic chemical manufacturing industry (SOCMI) falling under SIC code Group 28. The primary operation at the Carrollton plant consists of the manufacturing of silicone-based compounds. The primary raw materials at the plant are silica, methanol and hydrochloric acid. The methanol and hydrochloric acid are combined to produced methyl chloride which is then reacted with the silica metal to produce various silicone-based chemicals.

The plant also includes several support activities such as Utilities, Waste Treatment, Quality Assurance Laboratories, Barge Unloading, Product shipping and Research & Development (labs and pilot plants).

COMMENTS:

a. Type of control and efficiency
In addition to many local control devices, the primary control strategy for the plant is the Vent Header System (VHS), a complex collection and transport system for most of the major vents in the plant. Several hundred affected facilities are tied into the VHS and the central control device in this system is a natural gas-fired thermal oxidizer, T-10. The T-10 Unit has most recently been tested in 1991 and 1995. The testing was performed in accordance with NSPS requirements (40 CFR 60 Subparts NNN, RRR, Kb).

Alternative control strategies under the VHS are the P-10 recycle mode and the B-2 Scrubber.

b. Emission factors and their source:
A combination of AP-42 emission factors, material balance, site testing and vendor guarantees have been used to estimate emissions in the application.

c. Applicable Regulations
(Note: Only specific regulations have been listed here, no generally applicable regulations are listed here)
Regulation 401 KAR 51:017 (40 CFR 52.21) applies to the 703 and 766 Boilers
Regulation 401 KAR 59:435 (40 CFR 60 Subpart Dc) applies to the 766 Boiler.
Regulation 401 KAR 60:042 (40 CFR 60 Subpart Db) applies to the 767 Boiler.
Regulation 401 KAR 61:015 applies to the 600, 601, 657 Boilers and the 1114, 3201, 2202 Furnaces.

Regulation 401 KAR 59:015 applies to the 703, 766, 767 Boiler and the 2211, 3600, 5250 Furnaces.
Regulation 401 KAR 59:725 (40 CFR 60 Subpart NNN) applies to several distillation units at the plant (see permit for details).
Regulation 401 KAR 60:700 (40 CFR 60 Subpart RRR) applies to several reactor systems at the plant (see permit for details).
Regulation 401 KAR 59:485 (40 CFR 60 Subpart Kb) applies to several storage vessels at the plant (see permit for details).
Regulation 401 KAR 63:101 (40 CFR 63 Subpart F) applies to the D-1, D-10 and Barge Unloading Areas.
Regulation 401 KAR 63:160 (40 CFR 63 Subpart H) applies to the pipeline equipment in the D-1, D-10 and Barge Unloading Areas.
Regulation 401 KAR 59:010 applies to all the sources of non-combustion, process particulate emissions at the Carrollton plant.
Regulation 401 KAR 63:070 (40 CFR 63 Subpart D) applies to plant-wide emissions of hazardous air pollutants (HAPs).
Regulation 401 KAR 63:010 applies to fugitive dust emissions from the Filter Press Storage Area.

d. Regulations that are not applicable

i. For specific affected facilities: Many of the NSPS facilities (distillation columns, reactors, storage vessels) are exempt from the corresponding NSPS standards. For specific reasons of exemption, please see Section B of the permit.
ii. Site-wide non-applicable regulations and the reasons for exemption are covered in Section J of the permit.

e. Source-specific proposals

Emission and Operating Caps Description:

a. Early Reductions Emission Cap:
Dow Corning Corporation is covered by Regulation 401 KAR 63:070 (40 CFR 63 Subpart D), Regulations Governing Compliance Extensions for Early Reductions of Hazardous Air Pollutants. Based on a 90% reduction of their 1988 base year HAP emissions, Dow Corning will be subject to an enforceable emissions cap of 30.3 tpy of hazardous air pollutants.

b. Synthetic Minors:
Dow Corning has received the following synthetic minor permits:
C-88-068, (Namex Expansion) issued April 28, 1988 for VOC and PM_{10} emissions.
C-89-015, (Namex Wastewater Upgrade) issued March 6, 1989 for VOC emissions.
C-91-155 (MCDS Project) issued October 25, 1991 for VOC emissions.

Operational Flexibility:

a. Plant-wide VOC Emission Cap:
   Dow Corning has proposed a plant-wide emissions cap for VOC at 145 tons per year in lieu of complying with individual Synthetic Minor limitations. This proposal is under review and has not yet been granted with this permit. The Division is currently working with U.S. EPA Region IV to establish an administrative mechanism through which this request maybe granted. Language has been drafted in this permit to allow the Administrator and the Director to approve this alternate limitation without a permit reopening.

b. Opacity monitoring:
   Dow Corning is also in the process of requesting an exemption from a COM for a new boiler which is permitted for limited #2 fuel oil duty. Language has been drafted in this permit to allow the Administrator and the Director to approve this alternate limitation without a permit reopening.